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REPORT

ON THE

Government Horticultural Gardens,

LUCKNOW,

FOR THE

YEAR ENDING 31ST MARCH 1901.

ALLAHABAD:
North-Western Provinces and Oudh Government Press.
1901.

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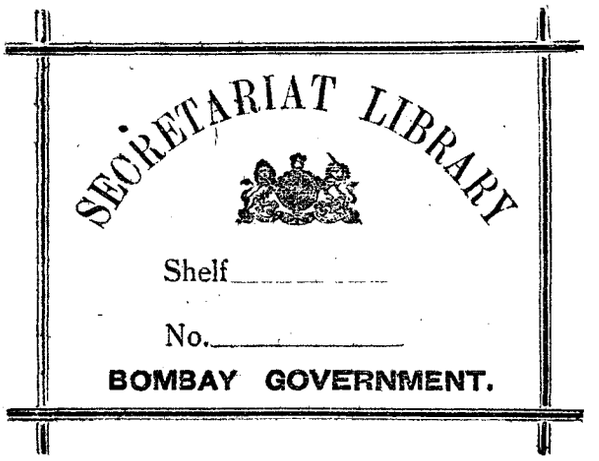

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No. $\frac{1810}{V-521}$ OF 1901.

FROM

W. H. MORELAND, ESQ.,

DIRECTOR OF LAND RECORDS AND AGRICULTURE,

NORTH-WESTERN PROVINCES AND OUDH,

To

THE CHIEF SECRETARY TO GOVERNMENT,

NORTH-WESTERN PROVINCES AND OUDH.

Dated Lucknow, the 22nd May 1901.

SIR,

I HAVE the honour to submit the report on the working of the Government Horticultural Gardens at Lucknow for the year ending March 31st, 1901. The report was received in manuscript on May 17th, and was sent to press with this review on May 22nd, 1901.

2. The principal function of this institution is the supply of seeds and plants to the public; the work of the year is fully described in the report and it is unnecessary for me to recapitulate it. The financial results are again highly satisfactory: expenditure was practically covered by the cash receipts, while seeds and plants worth about Rs. 3,600 were issued free of charge.

3. There has been the usual difficulty in finding and keeping apprentices to be trained in gardening. The demand for trained men is extensive, but it is not effective as the pay ordinarily offered is not sufficient to induce men to go through the necessary training.

4. The gardens were in charge of Mr. Ridley throughout the year except for six weeks when he was on leave; during this period the current work was carried on by the staff. Mr. Ridley manages several parks and gardens besides those referred to in this report, and he is entitled to great credit for the satisfactory results. Acknowledgments are due to the various donors specified in paragraph 106 of the report.

I have the honour to be,

SIR,

Your most obedient servant,

W. H. MORELAND,

Director.

Report on the Government Horticultural Gardens, Lucknow, for the year ending 31st March 1901.

I.—Fruit Culture.

Fruit crops.

1. The principal fruit crop in the garden (from a revenue point of view), *viz.* the mango crop, was almost a complete failure Pine apples were fairly good.

2. Nearly all sections of the citrus family did well, the Sylhet oranges and pummelows bore good crops of fruit; peaches and *alubukharas* were moderate crops, but *aluchas* were bad, *loquats* were a light crop, while figs and *leechis* were fair crops.

3. The seedling Malta orange trees again bore well, and a large amount of seed was secured from the fruit and sown with the object of raising a good stock of seedlings, among which possibly new varieties may eventually be found.

4. Want of ground space prevents the extension of fruit culture, except on the smallest scale and under somewhat unfavourable conditions.

5. The year's work has been chiefly confined to the culture of the trees already planted and to filling up blanks and propagating. This last operation is always an important one and takes up a good deal of time and attention.

Papaya. Papita (Carica papaya).

6. A very good fruiting variety of Carica papaya has been grown in the garden for a good many years, and out of hundreds of seedlings raised from it, no marked difference has ever been found either in the character of the trees or fruit produced from the seedlings, and till within the last few years the general opinion was that there was only one good fruiting variety of papaya in existence.

7. However that may have been, new and distinct varieties are now extant. So far, I cannot say much, if any, improvement has been effected in either size or flavour, but kinds bearing fruit distinct in size and form do exist, and six of these are now growing and fruiting in the garden.

8. One variety the seed of which was received from Morvi, has rather small fruits, but this is probably due to the trees being in rather poor soil.

9. Like most other fruit trees, the papaya responds to good treatment when given in the form of good soil and manure; thinning the fruit when small, also helps greatly towards improving size and quality.

10. Seeds of a large fruiting variety have recently been received from the Botanical Garden, Bangalore.

Mauritius Ber. Zyzyphus jujuba Masson var.

11. The Mauritius *ber*, fruited freely this year and so afforded an opportunity of judging its merits. These are far away below the best standard of Indian varieties and indeed are no better than most of the common wild varieties; the fruit is round and has a dry rather astringent flavour. Clearly the best Indian varieties might with advantage be imported into the Mauritius.

Mangoes.

12. Three strong plants of a new variety of mango named Gouruya malda were received from the Gwalior State gardens.

C.—Distribution.

13. The following are the details of the year's distribution of fruit trees :—

Name.	Sold.	Distributed gratis.	Total.
Oranges ...	681	...	681
Mangoes ...	823	...	823
Limes, lemons and citrons	214	...	214
Leechis ...	144	...	144
Plums and aluchás ...	121	...	121
Peaches ...	81	...	81
Panyalas ...	6	...	6
Papitás ...	24	...	24
Pears ...	73	...	73
Plantains ...	60	24	84
Pine apples ...	117	...	117
Pomegranates ...	13	...	13
Pummelows ...	40	...	40
Rose apples ...	6	...	6
Vines ...	43	...	43
Wampee ...	12	...	12
Loquats ...	131	...	131
Kamrakh ...	20	...	20
Figs ...	40	6	46
Guavas ...	276	200	476
Jack fruit ...	65	...	65
Jaman and pharendas	213	...	213
Momseri ...	3	...	3
Dewberry ...	6	...	6
Custard apples	6	...	6
Bel ...	3	...	3
Karondas ...	2	...	2
Barhal ...	2	...	2
Total ...	3,225	230	3,455

14. I much regret having again to report a decrease in the number of fruit trees sold and sent out. There was a decrease last year, and this has fallen still lower in the year under report.

15. The chief decreases are under mangoes, oranges and limes : the falling off is entirely due to less demand. Stocks of all, and particularly of mangoes, were large and equal to three times the number indented for.

16. Probably the late arrival of the Monsoon rains was one cause for the smaller demand. No planting was possible till August, so that a month at the beginning of the planting season was lost.

17. The general depression due to famine may also have had some effect in restricting fruit tree planting.

18. The total receipts from sale of fruit trees for the year amounted to Rs. 1,388-10-6, which is Rs. 264-2-6 less than last year from this source.

19. The value of fruit trees distributed gratis and in exchange amounted to Rs. 33-4-0, which added to the cash receipts, gives a total of Rs. 1,421-14-6 as the value of the year's distribution of fruit trees. Compared with last year this shows a decrease of Rs. 297-2-6.

II.—Vegetable and Farm Culture.

Country vegetables. Hot-weather kinds.

20. The several kinds of country vegetables were grown for the purpose of seed production. All the kinds grown in the hot weather did well except "*Tinda*" (citrullus vulgaris var fistulosus) which was almost a failure. As a delicate well flavoured vegetable it is certainly the best of its order (cucurbitaceæ) and well worth the attention of all who have to reside on the plains in the hot weather.

21. Good returns were also obtained from the section grown in the rainy season with the exception of one kind of *louki*.

English and imported vegetable seeds.

22. Owing to want of space it was necessary to reduce the area usually devoted to imported vegetables ; but all the usual kinds were grown and with the exception of tomatoes, gave good returns.

23. The past cold season was unusually moist owing to frequent falls of rain: this was favourable to most vegetables; peas in particular did well and yielded heavy crops.

24. Out of a good number of peas grown, most of which were really very good, Sutton's Peerless Marrowfat stood out distinctly as a heavy cropper and an excellent culinary pea.

25. Tomatoes were, I regret to say, again almost a failure; at a very early stage of growth the plants were badly attacked with disease; all so attacked failed to bear, and the returns obtained were only from the few healthy plants which escaped the disease.

Fodder grass. (Paspalum dilatatum).

26. A packet of seed of paspalum dilatatum, a South American fodder grass, was received from the Agri-Horticultural Society of India. Three separate sowings were made, but not a single seed germinated. I do not know if it has succeeded elsewhere in India.

English Field Turnips (Brasseia Rapa).

27. The six kinds of English field turnips mentioned in paragraphs 38 and 39, of last year's report were duly tried this year: one-eighth of an acre of each was put down in contiguous plots: the soil, manure and subsequent treatment were the same for each.

28. The following two kinds germinated badly, and as the crops were only about one half of full, they are for that reason left out of the returns.

The yield per acre of the other four kinds is as follows:—

		Md.
1.	Imperial Gren Globe (Carter's)	272
2.	Elephant Swede	256
3.	Pomerarian-White Globe	160
4.	Red Flatstone	120

29. Number 3 was the earliest and the bulbs largest, and I think some weight was lost by the crop standing too long. With turnips growth ceases as soon as the weather becomes warm, and nothing I consider is gained by leaving such crops standing after February.

30. The experiment affords no encouragement for the culture of English field turnips as a cattle fodder in India.

Field turnips are grown in England chiefly as a winter food supply and for which purpose they are largely pitted and stored: there is no corresponding period demanding this supply in India, and storage is impossible in the hot weather. As a food supply for cattle in India their value is doubtful. On the garden bullocks their consumption acted as a strong purgative.

31. Mangel Wurzel is far and away a better crop to grow in India for cattle food. In the first place mangels can be kept standing well into the hot weather, and are then good wholesome food and eagerly eaten by cattle with beneficial effects. In the second place mangels give a greater outturn per acre for the same cultural requirements and cost of production.

32. For the cold season almost any cereal crop would give a far greater and infinitely more wholesome fodder supply.

C.—Distribution.

33. The demand for acclimatised and country vegetable seeds was practically the same as last year. There is a slight falling off in the total of the receipts due to the failure of the tomato and pea crops in the preceding cold season.

34. The amount collected by sale of the above was Rs. 575-3-6 against Rs. 667-9-0 last year.

35. In the case of imported vegetable seeds there is also a slight decrease in the total receipts, which are this year Rs. 2,162-2-6 against Rs. 2,172-13-9 last year.

III.—Flower Culture.

Flowering annuals for seed.

36. Owing to the rains setting in late, the sowing of the rainy season annuals was delayed for nearly a month, and this threw the harvesting of the seed into the cold weather. Beyond interfering with, and delaying the putting in of some of the cold season crops no loss or injury was caused to these crops, from which finally adequate supplies of seed were collected.

Cold season flowering annuals.

37. The usual areas of choice flowering annuals for seed production were put down in season and from all good supplies of seed have been harvested.

Usambara violets (Saintpaulia Ionantha).

38. A stock of plants have been raised and are available for distribution of the "Usambara violet" saintpaulia ionantha, a pretty little pot plant of the order Gesneraceæ.

39. It is readily propagated by leaf cuttings. The first plants were raised from seed sown under glass, and the plant is found to do better under glass than in the open or ordinary chick-houses. Its abundant violet-blue flowers make it a very desirable plant to possess.

Fibre plants.

40. There is still a good deal of interest and enquiry among planters and others regarding Agaves and other fibre-producing plants. A local resident who has started a plantation at first preferred A. Americana or A. Lurida, but has finally decided to put down A. Vivipara.

Mauritius hemp. Furcroea Gigantea.

41. A number of old plants of furcroea gigantea poled during the cold season and bulbils are available in large quantities; but with the exception of one indent there has been no demand.

Sisal hemp. (Agave Sisalana).

42. The garden has not been indented on for plants of sisal hemp, and as a consequence the stock of young plants has been increased to 450; the 40 old stock plants are doing well, but have not poled yet.

Bowstring Hemp. (Sanseviera Cylindrica).

43. Only one indent came in this year for Sanseviera plants: it was for 200 of s. cylindrica which was complied with in full.

Shrub and tree nurseries.

44. As anticipated, the stocks of trees and shrubs in the nurseries at the close of last year proved equal to all demands that came in. Propagation received due attention and the year closes with good stocks on hand for the coming one.

Rose nursery.

45. The efforts made to increase the outturn of choice budded rose plants, has this year proved more than sufficient to meet the public demand. After satisfying all indents, a number of plants remain on hand.

46. The new stock put down this year is on the same scale as the one raised last year; this, with the remainder of last year's stock left on hand, provides a large and excellent stock for meeting the demands of the coming planting season.

47. A number of new kinds have been added to the collection by exchange with other public gardens.

Plant houses.

48. The plant houses are in course of being supplied with new bamboo chicks which are found the most satisfactory for providing the amount of light and shade required for the well-being of the plants growing in them.

49. The large and various collections of plants contained in the plant-houses are in good condition.

50. The hybrid amaryllis raised in the garden gave a much better show of flowers than they have shown for some years past.

51. Among the latest batch of seedlings old enough to flower several new colors and forms have been selected and named and numbered for propagation; the collection is now a very fine and valuable one.

Improvements.

52. A border on the north side of the cross road in the middle of the garden which had got into a ragged and unsightly condition was taken in hand in the rains and replanted. As it was low, a good deal of soil had to be used to raise the surface level.

53. The new plants put in are doing well; they are of a much more ornamental class than were the previous occupants, and in time when they have grown and filled up the space alloted to each, will add a good deal to the beauty of the garden.

C.—Distribution.

Acclimatised and imported flower seeds.

54. There was an increase in the demand and issue of acclimatised and imported flower seeds this year.

55. With regard to tree and shrub seeds there is a considerable falling off, and as these seeds are bulky and heavy, the decrease in the total weight issue of seeds for the year arises chiefly in this section.

56. The amount collected by sale of acclimatised flower tree and shrub seeds was Rs. 1,321-11-0 against Rs. 1,254-10-0 last year.

57. The sale of imported flower seeds was Rs. 118 this year against Rs. 109-4-0 last year.

Issue of timber trees, shrubs and ornamental plants.

58. The demand and supply of ornamental trees, shrubs and plants to the general public is nearly the same as last year. In the case of Government and public gardens, a considerable decrease took place. This is chiefly due to less planting having been required in the local public parks and gardens, the planting in which is now practically completed until at any rate further extensions are undertaken.

59. Calculated at ordinary rates, the value of ornamental trees, shrubs, plants, bulbs, cut flowers, &c. issued free of charge amounted to Rs. 3,577-8-0. This, added to the value of the fruit trees issued free, makes the total value of the year's free distribution Rs. 3,610-12-0.

IV.—Arboriculture.

Arboricultural nursery.

60. The late arrival of the rains delayed all planting operations for nearly a month and necessitated watering and care of young stocks for that time longer; even after the rains did break, there was much doubt and uncertainty as to their continuance, and taken altogether it was not a season to encourage tree planting on a large scale. There is, however, a slight increase in the number of trees issued, the figures being 3,105 against 2,746 last year.

Time for planting avenue trees.

61. The importance and advantage of planting out avenue and other trees early in the rainy season seems to me to be either little understood or acted upon, as most indents come in towards the end of the rains, and frequently after they have gone.

62. Trees dug up and planted during damp cloudy weather have an infinitely greater chance of living and establishing themselves than those planted after the rains have disappeared and dry bright weather has set in: the casualties in the later period cannot fail to be much greater than if the operation was carried out under the first named weather conditions.

63. Attention might usefully be drawn to this part of district arboricultural work.

64. In the civil station of Lucknow all the millingtonias were cut down this year: the reasons for this slip were the great liability of this tree to be blown down by storms and thereby causing great inconvenience and danger to the public safety, damage was constantly being done to public and private property, and the telegraph lines were frequently broken. Experience here has amply proved how unsuitable it is for avenue planting. Trees of a more lasting description and not liable to be blown down, have been planted to replace the millingtonias.

65. No injury was done to young trees by frost : the few occasions on which it occurred were all too slight to hurt vegetation of any kind.

66. The following statement furnishes details of the trees raised, distributed and stock on hand at the end of the year. The number under ' missing ' is large and chiefly due to the removal of young trees which had become too large to transplant.

Names of trees.	Number in nursery on 31st March 1900.	Raised during the year.	Total.	Distributed during 1900-1901.	Missing.	Total in nursery on 31st March 1901.
Amb	12,477	3,800	16,277	2,263	1,614	12,400
Ambili	437	520	957	188	39	730
Mohwa	206	118	324	31	...	293
Gular	312	196	508	3	...	505
Jaman and pharenda	492	580	1,072	39	93	940
Pakur	340	179	519	6	...	513
Peepal	230	219	449	56	...	393
Bargud	258	145	403	30	16	357
Bel	336	18	354	...	24	330
Shahtút	140	60	200	25	5	170
Shisham	190	126	316	25	33	258
Momseri	135	...	135	2	3	130
Kath Jaman	250	70	320	...	97	223
Chilwal	236	100	336	87	33	216
Bignonia adenophylla	66	70	136	1	...	135
Sarsa	38	50	88	...	...	88
Barhal	43	18	61	15	12	34
Kachnár	78	120	198	...	...	198
Babul	26	130	156	...	26	130
Bijaisar	28	...	28	3	...	25
Nim	110	339	449	139	...	310
Ficus retusa	179	44	223	66	4	153
Mahogany	100	...	100	32	...	68
Khirni	62	18	80	...	...	60
Kaitha	38	115	153	...	4	149
Devi-Devi	18	...	18	...	18	...
Rain tree	28	...	28	...	..	28
Amaltas	95	...	95	1	58	36
Kanjee	58	42	100	...	...	100
Kathal	400	110	510	...	100	410
Amra	48	...	48	3	...	45
Sterculia Alata	100	28	128	...	6	122
Ficus comosum	...	40	40	...	...	40
Total ...	17,554	7,255	24,809	3,015	2,185	19,609

67. The cost of maintaining the nursery is less than last year: the allotment was Rs. 938, and the actual expenditure Rs. 767-14-2, leaving a saving of Rs. 170-1-10.

68. The receipts are slightly in advance, amounting to Rs. 310 or Rs. 28-11-9 more than last year.

Exotic Plantation.

69. The exotic plantation is in much the same condition as it was reported to be in last year, the only difference being the annual additional growth of the trees under observation.

70. No additions were made during the year.

71. Details of the trees now under trial are as follows:—

Names of trees under trial.	Number alive last year.	Number alive this year.	Remarks.
Antidesma dallachyana	2	2	Healthy; little progress.
Arabian date palms	1	1	Not doing well.
Broussonetia papyrifera	4	4	Healthy; moderate growth.
Bambusa oliveriana	2	2	Doing well.
Casuarina tenuissima	4	4	Healthy; fair progress.
Ceratonia siliqua	6	6	Healthy; little growth.
Eucalyptus rostrata	17	17	A few doing well; rest badly.
Ditto cerbera	27	32	Five planted; a few doing well, others badly.
Ditto tereticornis	45	45	None doing satisfactorily.
Ficus Triemanii	5	5	Doing very well.
Do. Tsiela	6	6	Ditto.
Garcinia Roxburghii	6	6	Healthy; growth slow.
Leacuna glanca	6	6	Very little growth; healthy.
Maclura aurantiaca	4	4	Doing well.
Manihot Glaziovii	4	3	One dead, two doing fairly well, not injured by frost.
Melia azadarach var umbraculiformis ...	6	6	Healthy, doing well.
Pterocarpus marsupium	4	4	Two trees doing well, two badly.
Pithecolobium saman	15	15	All in a most unhealthy condition.
Swietenia macrophylla	6	6	Doing fairly well.
Tecoma serratifolia	3	4	One planted, one doing well, two badly.

72. The allotment for the year was Rs. 100, of which Rs. 81-9-2 was spent, leaving a saving of Rs. 18-6-10.

73. Receipts amounted to Rs. 15, which was paid into the Treasury to the credit of the District Board.

Date Plantation.

74. As previously explained, the date plantation consists chiefly of eucalyptus citriodora, with a few E. tereticornis. The plantation as a whole is doing fairly well.

75. Little attention is paid to the date trees, as there is little hope of success being achieved with date culture in Oudh.

76. The work of the year was practically confined to watering small recently planted trees, and filling up blanks in places where previous plantings had failed.

77. The allotment for the year was Rs. 350, of which 304-1-9 was spent, leaving a saving of Rs. 45-14-3.

78. Receipts amounted to Rs. 25, which was paid into the Treasury to the credit of the District Board.

V.—Financial Results.

Expenditure.

79. The estimated expenditure for the Government Horticultural Garden for the year under report amounted to Rs. 16,900, and the actual expenditure was Rs. 16,843-13-11, or Rs. 56-2-1 less than the estimate.

Receipts.

80. The estimated receipts for the year were Rs. 16,000 and the actual receipts amounted to Rs. 16,833-11-11, or Rs. 833-11-11 over the estimate and Rs. 271-10-10 less than last year.

81. The receipts realized from sale of garden produce as detailed in appendix No. 1 amounted to Rs. 16,043-11-0, or Rs. 309-2-10 less than was realized for the same produce last year,

82. By adding to the total cash receipts for garden produce, the value of plants &c., supplied free of charge, the total revenue for the year from garden produce amounts to Rs. 19,654-7-0, an increase upon last year of Rs. 1,714-11-2.

83. Again, by adding together the actual receipts (Rs. 16,833-11-11) and the value of the plants, &c., issued free of charge (Rs. 3,610-12-0) the total of the year's outturn from the garden amounts to Rs. 20,444-7-11, an increase upon last year's total outturn of Rs. 1,752-3-2.

84. Comparing the actual expenditure for the year against the actual receipts, gives a deficit of Rs. 10-2-0.

85. By comparing the total value of the year's outturn Rs. 20,444-7-11 against the actual expenditure, Rs. 16,843-13-11, the profit on the year's working is Rs. 3,600-10-0.

86. Last year's revenue was the largest the garden had ever yielded and the less amount (Rs. 271-10-10) realized this year in actual cash revenue is attributable to various adverse conditions: (1) to being unfavourable to fruit tree planting, (2 no mango crop and loss of income on that account, (3) to severe famine on the western side of the country and Punjab, causing general dearness of living owing to prevailing high prices.

87. Had the year been normal as to weather and economical conditions, I have no doubt the present year's revenue would have shown a substantial advance in place of the small decrease which has actually occurred.

Subscribers.

88. There was an increase of one in the number of second class subscribers: the number of the first class remained the same as last year.

89. The numbers of each class were :—

First class	8
Second class	6

Native apprentices.

90. At the close of last year there were 15 apprentices in the garden. One of these was, on completion of his time of training, transferred to the Wingfield Park Establishment, seven left voluntarily for various reasons. After delay and with difficulty the vacancies were filled up and the number entertained at the end of the year is again 15.

Flower show.

91. Forty-two applications were received during the year for trained *malis*, and as in preceding years, few could be complied with, owing to want of competent men being available to take the places and terms.

92. The annual flower show was held in the Wingfield Park on the 9th of March, a week later than usual. The date proved to be too late, particularly for vegetables, which were not shown in such good quality and quantity as are usually exhibited.

93. As shown in the statement of number of exhibits, there is a considerable falling off in nearly all sections: the total number reaching 121 less than at last year's show.

94. There was, I am glad to say, a much greater attendance of the general public at the Show.

A satisfactory feature in connection with these shows is the growing interest taken in them by native cultivators and market gardeners, many of whom bring in vegetables and compete often successfully for the prizes offered.

96. The following statements furnish details of the number of exhibits in each class, both for last year and this; also of the receipts and expenditure of this year's show :—

Section.		Last year's number of exhibits.	This year's number of exhibits.
I.—Public gardens.	Foliage and flowering pot plants... ...	18	18
Ditto	Cut flowers	13	15
II.—Private gardens.	Foliage and flowering pot plants... ...	189	135
Ditto	Cut flowers	96	70
III.— Ditto	Vegetables	283	245
IV.—Public and jail gardens: vegetables	... ...	132	122
V.—Fruits (open to all)	... ...	37	34
Ladies' prizes	... ...	15	23
	Total ...	783	662

Receipts.

	Rs.	a.	p.
Balance from last year	359	1	0
Contributed by European gentlemen	425	0	0
Ditto Native	57	0	0
Ditto Hoseinabad Endowment	50	0	0
Realized by sale of tickets	235	0	0
Total ...	1,126	1	0

Expenditure.

	Rs.	a.	p.
Distributed in prizes	467	0	0
Printing schedules and advertising	35	10	9
Construction and repairs to show stands	8	15	0
Miscellaneous	112	4	0
Balance with Deputy Commissioner	502	4	0
Total ...	1,126	1	0

Season.

97. The hot weather was prolonged by nearly a month as the rains did not set in properly till July was well advanced. This had a general adverse influence upon the garden and much of the work connected with it. The rains were light and fitful and of a kind to make intending planters hesitate to carry out tree planting of any kind other than on a limited scale.

98. The cold weather was marked by a great amount of dull damp weather and frequent falls of rain, but no serious harm was done to plants or garden crops. There was little frost, and on no occasion was it intense enough to cause injury to garden crops.

99. The year cannot be described as a favourable one for horticultural work. The severe famine in other provinces had the effect of raising prices here, and I have no doubt the general stringency abroad was a potent cause in lessening outlay upon gardening in general.

100. The European garrison indent largely upon the garden for all kinds of produce, and the reduced number resident in the country during the whole of this year, has no doubt contributed to the diminished demand noted in several sections of the year's outturn.

101. I was on privilege leave from the 22nd May to the 5th July, during which time the head clerk, Babu Durga Prasad held charge. I am glad to say he carried on the duties and managed the work very satisfactorily during my absence.

Owing to the unsatisfactory way into which the second clerk fell in doing his work his services were dispensed with. In the work of his successor there is as yet great room for improvement. The head *mali* and his assistants have worked well during the year.

102. In compliance with G. O. No. $\frac{2537}{X}$, dated 25th May 1900, I visited Agra in connection with the laying out of the new park and circuit-house grounds there. My visit lasted five days, all of which were devoted to the consideration of a general plan for treating and laying out the abovenamed places; particular attention being given to the improvement of the immediate approaches to the Taj. I have since been informed that the general plan then decided upon in consultation with the Commissioner, Garden Committee, and Superintendent, has been approved by Government and the work is in process of being carried out.

103. It will not, I hope, be considered out of place here to mention the difficulty experienced all through the year of getting sufficient hands to keep the labour establishment up to full strength.

This applies not to one garden in particular, but to each of the several gardens and parks under my control. There has been a constant going and coming, chiefly among men on the lowest (Rs. 4-8-0) scale of pay. Often it has been difficult to get necessary work done owing to want of hands.

104. The cause is not very clear: but the high prices of staple food-grain may possibly have had much to do with causing men to leave and go elsewhere in search of higher wages.

105. These remarks apply to full-grown men: there has been no difficulty in getting women and boys.

Contributions.

106. The following is a list of contributors and their contributions to the garden during the year:—

From Dr. Bonavia—

Westwood, Richmond, England, a quantity of hips (seeds) of the Penzance Briar Rose "Jeannie Deans."

From Professor Max Cornee:—

Museum D. Histori Noturelle, Paris:—

A packet of seed of Lonchocarpus. Cyanescens. "Indigo liane."

From the Conservator of Forests, Darjeeling:—

5lbs of seed of *mali*? Bamboo (Melocanna bambusaeides).

½lb of seed of arundinaria Falconerii.

From the Deputy Conservator of Forests, Depôt and Agency Division, Rangoon—

2lbs 7 ozs. seed of Dendrocalamus strictus.
1lb 2 ozs. seed of Bambusa Tulda.

From the Director, Botanical Garden, Sydney—

6 packets of seeds of six species of Eucalypti.

17 packets of seeds of ornamental trees and shrubs.

7 packets of seeds of seven choice kinds of palms.

From the Superintendent, Royal Botanic Garden, Calcutta:—

4½lbs of palm seeds of 8 choice and distinct kinds.
2 seeds of Aesculus punduana.
4 seeds of Mangefera syloatica.
100 small plants of areca Madagascariensis.

From the Superintendent, Lall Bagh, Bangalore :—

2lbs of seeds of caryota urens.
1 packet of seeds of a large fruiting variety of papaya.
1 packet of seeds of Albizzia moluccana.

From the Superintendent, State Gardens, Baroda :—

1 packet of seeds of caryota urens.
11 packets of seeds of ornamental trees and shrubs, 11 kinds.

From the Superintendent, State Gardens, Gwalior :—

3 grafted plants of Gouroya mango.
3 roots of an oval stemmed bamboo.
13 plants of new acalyphas and other rare ornamental plants, 1865 seeds of seven choice and rare kinds of palms.

From the Superintendent, Government Agri-Horticultural Garden, Lahore— :

333 plants of choice named chrysanthemums.
107 pieces (undivided) of the same.
26 cuttings for budding of 6 choice named roses.
1 packet of seeds of Magnolia grandiflora.

From the Superintendent, Botanical Gardens, Ootacamund :—

18 packets of seeds of 18 kinds of ornamental trees, shrubs and climbing plants.

From the Secretary, Agri-Horticultural Society of India, Calcutta :—

1 packet of seeds of Paspalum dilatatum.
3 plants of Musa cavendishi.
2 plants of clematis paniculata.

From the Superintendent, Agri-Horticultural Society's Garden, Madras :—

6 packets of seeds of six kinds of ornamental trees and shrubs.
1 packet of seeds of Tree Tomato (Cyphomandra betacea).

From the Superintendent, Government Botanical Garden, Sahâranpur—

42 Cuttings for budding of choice named roses.
7 plants of seven distinct named vines.
8 plants of peach trees of named kinds.
2 seed pans of seedlings of Chamærops fortunei.
2 Ditto Phœnix rupicola.
30 plants of Livistona rotundifolia, Java var.
30 Ditto Caryota urens.
30 Ditto Livistona oval iformis.
2 Ditto Peptadenia Oudhensis.
4 ozs. of seed of Nanonhops Ritchiena.
2 packets of seeds of flowering annuals.

From W. H. Moreland, Esq., C. S., Department of Land Records and Agriculture, North-Western Provinces and Oudh.

3 seeds of Queensland nut (Macademia ternifolia).

From C. Nickels, Esq., Pussewa Factory, Jaunpur :—

14 plants of rare and choice flowering trees and shrubs.

From Nawab Syed Ali, Khan Bahadur, Cawnpore :—

8 fruits of a large fruited and sweet variety of Kamrakh.

From H. A. Tresham, Esq., Cawnpore :—

A packet of seed of the Black Wattle of South Africa (Acacia Mollissima).

By purchase—

From Messrs. Anderson and Co., Sydney :—

100 plants of 4 species of Araucarias.

From Messrs. Vilmarin Andrieux and Co., Paris :—

800 seeds of choice palms, 7 kinds.

From E. Benary, Esq., Erfurt, Germany :—

1,300 seeds of palms, 15 kinds.
13 ozs. of seeds of 7 choice kinds of Cypress and Junipers.
173lbs. 10 ozs. vegetable seeds.
2½lbs. Verbena seeds.
549 pictorial packets of flower seeds.
84 packets of seeds of choice annuals of kinds.

From Messrs. Sutton and Sons, Reading, England :—

2lbs. field knol-khol seeds.
2lbs. of seeds of Mangel Wurzel.
6lbs. of cauliflower seeds, 2 kinds.
92 packets of vegetable seeds of kinds.

From Messrs. Landreth and Sons, Philadelphia :—

25 collections of vegetable seeds of 22 kinds each.
20 Ditto ditto 32 ditto.
110 quarts of pea seeds of seven choice kinds.
92lbs. of vegetable seeds of kinds.

From Messrs. James Veitch and Sons, London :—

912 bulbs of single and double anemones.
500 bulbs of Ranunculus.
125 ditto Lilium, 2 kinds.

107. The following seeds were supplied from the gardens free of charge :—

To Dr. Bonavia, Westwood, Richmond Road, Worthing, England :—

2 fruits of Sylhet orange.
1 packet oleander seeds.
1 packet creeper seeds.
½oz. Lucknow chitla melon seeds.

To C. Curtis, Esq., Superintendent, Botanical Garden, Penang :—

2oz. Eucalyptus seeds.

To F. E. G. Mathews, Esq., Naini Tal :—

6 packets tree seeds.

To Government House Garden, Naini Tal :—

21 packets flower seeds.

To the Superintendent, Government Botanical Garden, Saháranpur :—

9 packets tree and shrub seeds.
2oz. seeds of Eucalyptus citriodora.

To William Barnett, Esq., Rosario Argentine Republic :—

22 packets tree and shrub seeds.

To George Reid, Esq., Naini Tal :—

6 packets vegetable seeds.

To the Superintendent, Taj Garden, Agra :—

10 kinds of fern spores.

To the Secretary, Agri-Horticultural Society of India, Calcutta :—

2 lbs. ripe singhara.

New office and seed store.

108. The construction of the new office and seed store previously sanctioned by Government was commenced and finished by the Public Works Department during the year and handed over to me in March 1901. It is a substantial building providing good and ample accommodation for present and also probable future requirements, for many years to come.

M. RIDLEY,
Supdt., Govt. Horticultural Garden, Lucknow.

APPENDIX I.

Statement showing the receipts and expenditure of the Government Horticultural Garden, Lucknow, for the year ending 31st March 1901.

Receipts.	Actuals of 1899-1900.	Sanctioned estimate of 1900-1901.	Actuals of 1900-1901.	Expenditure.	Actuals of 1899-1900.	Sanctioned estimate of 1900-1901.	Actuals of 1900-1901.
	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
Interest on Government notes...	94 4 2	94 0 0	94 4 2	Superintendent	3,300 0 0	3,300 0 0	3,300 0 0
Rent of land	346 4 9	360 0 0	419 12 9	Exchange compensation allowance	201 12 3	207 0 0	203 9 3
Subscriptions	312 0 0	340 0 0	276 0 0	Local allowance	300 0 0	300 0 0	300 0 0
Total ...	752 8 11	794 0 0	790 0 11	Gardeners and Assistants	3,117 0 4	3,312 0 0	3,086 13 0
Sales.				Clerks	813 13 5	864 0 0	861 0 4
On cash payment.				Servants	72 0 0	72 0 0	72 0 0
Fruit trees	1,652 13 0	...	1,388 10 6	School for native gardeners	658 7 10	700 0 0	666 9 7
Vegetable and flower seeds (acclimatised)	1,922 3 0	...	1,896 14 6	Travelling allowance	174 8 0	300 0 0	204 1 0
Ditto ditto (imported)	2,282 1 9	...	2,280 2 6	Honorarium to Superintendent	20 0 0	...	...
Ornamental trees and plants	6,456 9 3	...	6,481 5 0	Purchase of seeds and plants	3,275 0 0	3,400 0 0	3,556 8 3
Vegetables	179 11 9	...	186 2 6	Ditto live stock	270 0 0	270 0 0	263 0 0
Cut flowers	683 12 4	...	662 5 3	Feed of ditto	1,460 13 0	1,300 0 0	1,578 2 6
Fruit	933 4 3	...	464 5 3	Purchase of manure	9 11 6	100 0 0	46 6 0
Wood and grass	13 15 0	...	44 5 0	Maintenance of premises	257 0 3	300 0 0	200 0 0
Miscellaneous	2,228 7 6	...	2,639 8 6	Coolie labour	1,000 0 0	1,000 0 0	999 15 9
Total ...	16,352 13 10	15,206 0 0	16,043 11 0	Postage charges	205 0 0	200 0 0	200 0 0
				Telegram do.	1 8 0	5 0 0	4 14 0
				Purchase and repairs of tools, &c.	981 4 9	950 0 0	950 0 0
				Petty contingencies	339 10 9	300 0 0	350 14 3
				Plus for rounding	...	+20 0 0	
Total, receipts in cash ...	17,105 6 9	16,000 0 0	16,833 11 11	Total ...	16,457 10 1	16,900 0 0	16,843 13 11

M. RIDLEY,
Superintendent, Government Horticultural Garden, Lucknow.

APPENDIX II.

Abstract of distribution list.

Names of departments, &c. supplied.	Plants.									Seeds.						
	Fruit.		Strawberries.	Ornamental and timber trees.		Ornamental plants and shrubs.		Bulbs and tubers.	Total.	Vegetables.	Flower.	Fruit.	Tree and shrub.	Miscellaneous.	Total.	
	Plants.	Cuttings.		Plants.	Cuttings.	Plants.	Cuttings.								Number of packets.	Weight.
																lbs. ozs.
Arboriculture	200	...	...	...	...	...	...	...	200	...	...	...	...	...	...	...
General public	2,243	...	2,050	1,544	...	5,345	327	3,620	15,129	4,000	5,661	1	31	5	9,698	1,099 8
Government and Public Gardens in India,	992	...	5,850	2,825	...	6,626	355	2,239	18,887	586	1,967	1	17	3	2,574	500 4
Ditto in other countries ...	...	...	...	...	...	...	...	...	...	1	...	...	25	...	26	1 0
Jails	20	...	...	12	...	...	...	...	32	51	12	...	...	...	63	7 12
Total ...	3,455	...	7,900	4,381	...	11,971	682	5,859	34,248	4,638	7,640	2	73	8	12,361	1,608 8

M. RIDLEY,

Superintendent, Government Horticultural Garden, Lucknow.

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Hemendra Kothari
on 24 February, 2020

ORDERS OF GOVERNMENT.

No. $\frac{2206}{\text{I—677E}}$ of 1901.

FROM

W. S. MARRIS, ESQ., I.C.S.,

UNDER-SECRETARY TO GOVERNMENT,

N.-W. PROVINCES AND OUDH,

To

THE DIRECTOR OF LAND RECORDS AND AGRICULTURE,

N.-W. PROVINCES AND OUDH.

DATED NAINI TAL, THE 17TH JULY 1901.

SIR,

REVENUE DEPT. I AM directed to acknowledge the receipt of your letter No. $\frac{1810}{\text{V—521}}$, dated $\frac{\text{22nd May}}{\text{2nd July}}$ 1901, submitting with your review Mr. Ridley's report on the working of the Horticultural Gardens at Lucknow for the year ending 31st March 1901.

2. The Government recognises that the financial results are again satisfactory, and that Mr. Ridley has done good work during the year. I am to request that the acknowledgments of Government may be conveyed to the contributors to the gardens.

I have the honour to be,

SIR,

Your most obedient servant,

W. S. MARRIS,

Under-Secy. to Govt., N.-W. P. and Oudh.